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United States Department of Agriculture

Soil Conservation Service

Colorado · New Mexico Water Supply Outlook

February 1, 1986

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Foreward

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave, Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado	2490 West 26th Ave, 3d Fl, Denver CO, 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
New Mexico	517 Gold Ave, SW, Room 3301, Albuquerque, NM 87102-3157
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave, 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 96502; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

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Colorado–New Mexico Water Supply Outlook

and

Federal – State – Private Cooperative Snow Surveys

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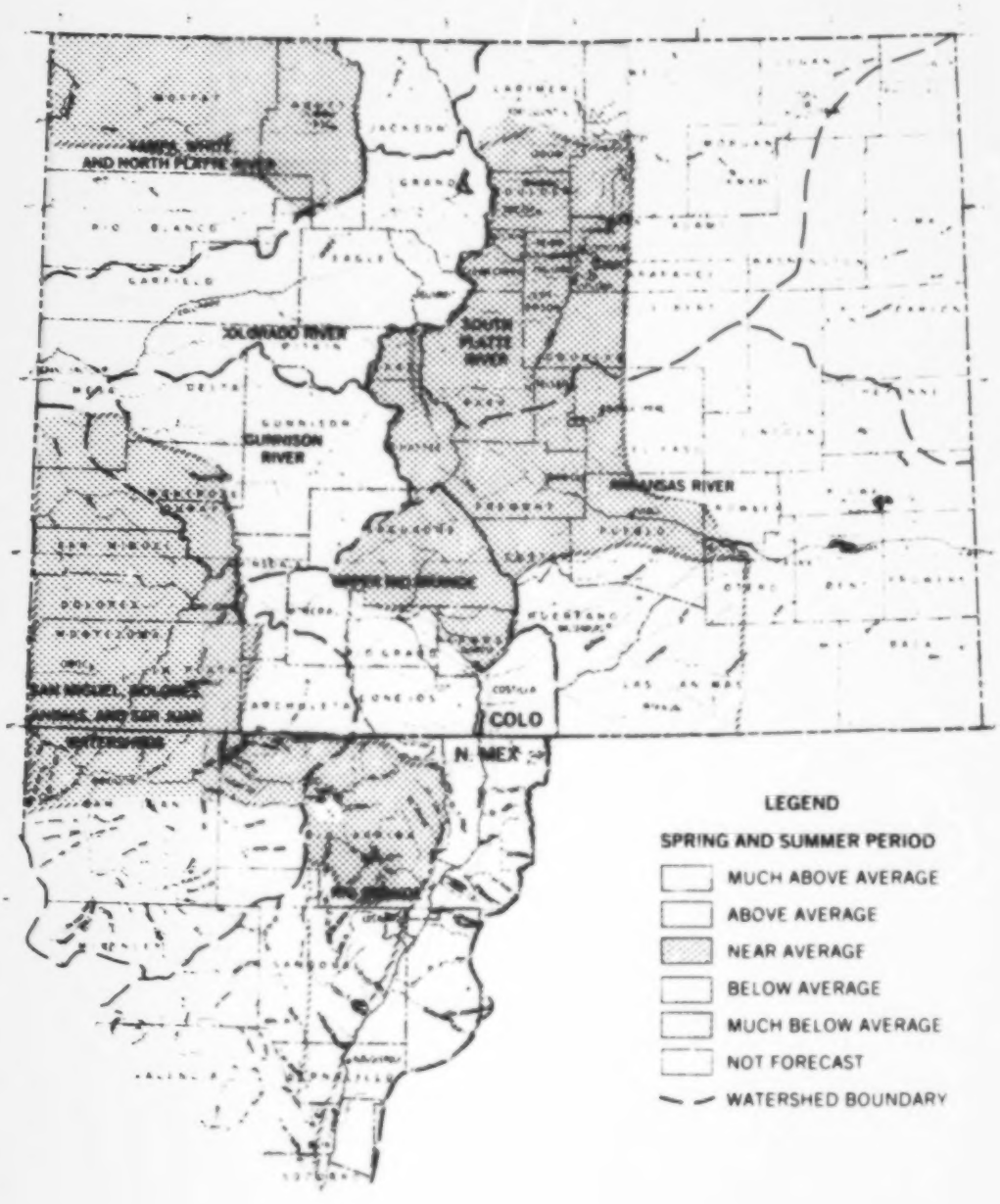
U S DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



STREAMFLOW PROSPECTS
COLORADO

0 25 50 75 100 M

0 50 100 150 KM

SOURCE *Data compiled by SCS Field Personnel*

AUGUST 4 R 39356

GENERAL OUTLOOK

SUMMARY:

JANUARY SET NEW WARM TEMPERATURE RECORDS FOR MANY LOCATIONS AROUND COLORADO AND NEW MEXICO. JANUARY, TYPICALLY, IS THE DRIEST MONTH OF THE WINTER, AND THIS YEAR WAS NO EXCEPTION. MOST STATIONS HAD ONLY ONE-THIRD OR LESS OF THEIR NORMAL PRECIPITATION FOR THE MONTH. SNOWMELT RUNOFF FORECAST VOLUMES HAVE DECREASED AS A RESULT OF BELOW NORMAL PRECIPITATION. MOST STREAMFLOW VOLUMES IN COLORADO AND NORTHERN NEW MEXICO ARE GENERALLY FORECASTED TO HAVE AVERAGE TO SLIGHTLY BELOW STREAMFLOWS.

SNOWPACK:

SNOWPACK CONDITIONS TOOK A TREMENDOUS DOWNWARD TURN DURING JANUARY. STATEWIDE SNOWPACK IN COLORADO WENT FROM 144% OF AVERAGE ON JANUARY 1, TO 104% OF AVERAGE FOR FEBRUARY 1. SNOWPACK IN THE NORTHERN PORTION OF NEW MEXICO IS CURRENTLY ONLY 68% OF AVERAGE. THIS COMPARED TO 118% OF AVERAGE FOR JANUARY 1. THE STORM TRACK DURING MUCH OF JANUARY WAS NORTH OF COLORADO. THE SNOW THAT DID FALL IN COLORADO WAS GENERALLY IN THE NORTHERN AND CENTRAL MOUNTAINS. SNOWFALL IN THE SOUTHERN PORTION OF COLORADO AND NORTHERN NEW MEXICO WAS WELL BELOW NORMAL FOR THE MONTH. ABOUT 60% OF THE WINTER'S SNOWPACK SHOULD BE IN PLACE, WHICH LEAVES 40% YET TO COME. THIS COULD CHANGE THE OUTLOOK CONSIDERABLY DURING THE NEXT THREE MONTHS.

PRECIPITATION:

PRECIPITATION WAS EXTREMELY LIGHT THROUGHOUT COLORADO AND NORTHERN NEW MEXICO FOR THE SECOND STRAIGHT MONTH. MOST LOW ELEVATION PRECIPITATION STATIONS RECEIVED LESS THAN ONE-THIRD OF THEIR EXPECTED MONTH'S PRECIPITATION, WITH MANY STATIONS REPORTING ZERO FOR THE MONTH. THE BASIN THAT RECEIVED THE MOST PRECIPITATION FOR THE MONTH WAS THE GUNNISON AT 43% FOR JANUARY, FOLLOWED BY THE YAMPA, WHITE AT 39%. THE LOWER RIO GRANDE IN NEW MEXICO RECEIVED ONLY 23% OF NORMAL FOR THE MONTH. SEASONAL TOTALS HAVE BEEN STEADILY DECLINING. IN NORTHERN NEW MEXICO, SEASONAL TOTALS HAVE DROPPED FROM 200% OF AVERAGE IN OCTOBER, TO 98% OF AVERAGE CURRENTLY. SEASONAL TOTAL PRECIPITATION IN COLORADO RANGES FROM NEAR NORMAL TO 35% ABOVE NORMAL IN THE YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS.

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RESERVOIRS:

A MEASURE OF 69 RESERVOIRS FROM AROUND COLORADO, INDICATE GOOD RESERVOIR STORAGE THROUGHOUT THE STATE. CURRENT STORAGE IS 48% ABOVE NORMAL, AND 89% OF LAST YEAR. RESERVOIR STORAGE IN NEW MEXICO IS 409% OF AVERAGE. THIS IS 64% OF THE USEABLE CAPACITY. AN ABUNDANT AMOUNT OF STORED WATER EXISTS IN BOTH STATES, AND CAN BE USED TO SUPPLEMENT MOST WATER DEFICIENCIES IF THEY SHOULD OCCUR DURING THE SUMMER MONTHS. PLEASE NOTE: THE RESERVOIR DATA THAT APPEARED IN THE JANUARY 1 WATER SUPPLY OUTLOOK REPORT IS REVERSED. THE CORRECT NUMBERS FOR THE MONTH ARE LOCATED IN THE "LAST YEAR COLUMN", AND LAST YEAR'S DATA IS LOCATED IN THE "THIS YEAR COLUMN".

STREAMFLOW:

SNOWMELT RUNOFF FORECAST VOLUMES HAVE DECLINED FROM A MONTH AGO. THE HIGHEST STREAMFLOW VOLUMES OCCUR IN THE NORTHERN PORTION OF COLORADO. THE HEADWATERS OF THE NORTH PLATTE, LARAMIE, AND COLORADO RIVERS RANGE FROM 15% TO 25% ABOVE AVERAGE. THE UPPER RIO GRANDE, AND SAN JUAN RIVERS IN THE SOUTH, HAVE ABOVE NORMAL FORECAST VOLUMES. MUCH OF THE REST OF COLORADO HAS AVERAGE TO SLIGHTLY BELOW AVERAGE VOLUMES, EXCEPT FOR STREAMS WITH THEIR ORIGINS IN THE GRAND MESA AREA. STREAMFLOW FORECASTS IN NEW MEXICO ALONG THE MAIN STEM OF THE RIO GRANDE, ARE EXPECTED TO PRODUCE 118% OF AVERAGE AT OTOWI BRIDGE AND 125% OF AVERAGE AT SAN MARCIAL. MOST OTHER STREAMS THAT ORIGINATE IN NEW MEXICO ARE FORECASTED TO PRODUCE ONLY 70% TO 80% OF NORMAL VOLUMES.

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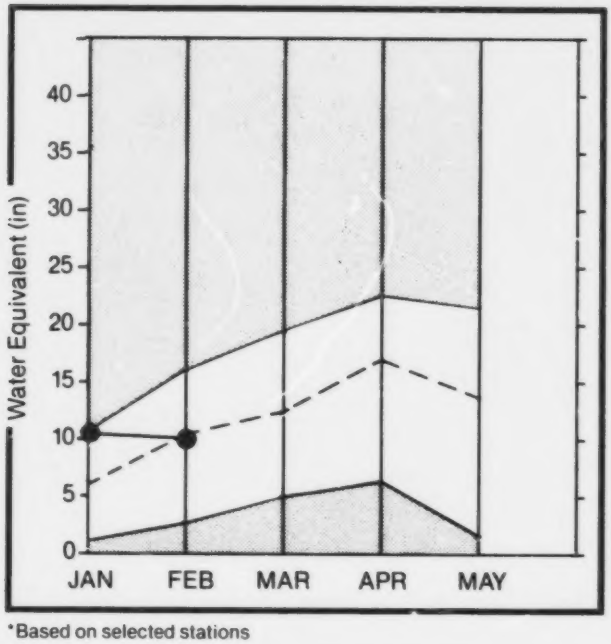
Gunnison River Basin in Colorado

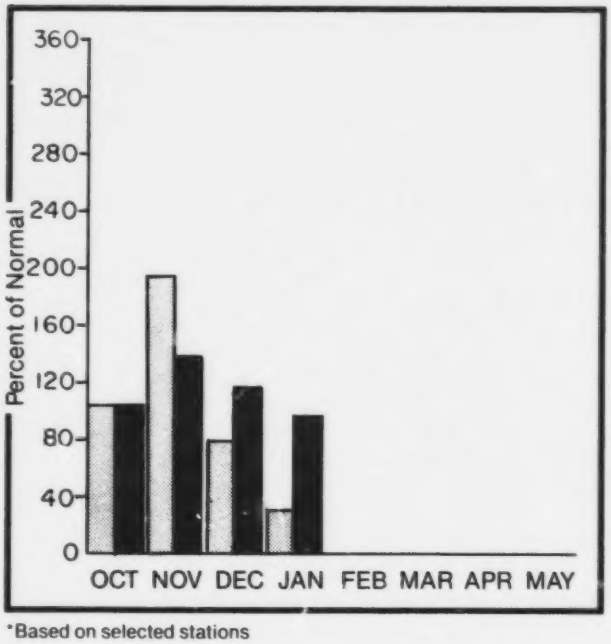
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

ABOVE AVERAGE WATER SUPPLIES ARE FORECAST THIS YEAR IN THE GUNNISON BASIN. A DRY JANUARY HAS DROPPED SNOWPACK AVERAGES THROUGHOUT THE BASIN. SNOWPACK IN THE UNCOMPAHGRE BASIN IS CURRENTLY ONLY 85% OF AVERAGE. PRECIPITATION AT LOWER ELEVATIONS HAS BEEN MUCH BELOW NORMAL, BUT THE SEASONAL TOTAL IS NEAR AVERAGE. RESERVOIR STORAGE IS 20% ABOVE AVERAGE. STREAMFLOWS ORIGINATING IN THE GRAND MESA AREA, ARE FORECAST ABOVE AVERAGE, WHILE THE REST OF THE BASIN SHOULD HAVE SLIGHTLY ABOVE AVERAGE STREAMFLOWS.

For more information contact your local Soil Conservation Service office.

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GUNNISON RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
TAYLOR RIVER IMF to Taylor Park Res	APR-SEP	115.0	117.0	101	139	82				
EAST RIVER at Almont	APR-SEP	202.0	222.0	109	140	87				
GUNNISON R INFLOW to Blue Mesa Res *	APR-SEP	785.0	910.0	115	149	99				
NORTH FORK OF GUNNISON *	APR-SEP	285.9	360.0	125	159	93				
SURFACE CREEK near Cedaredge	APR-SEP	17.3	23.0	132	168	98				
UNCOMPAHGRE RIVER at Colona	APR-SEP	134.0	135.0	100	134	75				
GUNNISON RIVER near Grand Junction *	APR-SEP	1258.0	1510.0	120	169	84				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
BLUE MESA	830.0	465.0	557.0	379.4
CRAWFORD	14.3	14.3	14.0	6.8
FRUITGROWERS	4.3	2.3	4.0	3.1
FRUITLAND	9.2	1.1	3.0	2.7
MORROW POINT	121.0	115.0	115.0	102.8
TAYLOR PARK	106.0	70.2	68.0	60.7

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
GUNNISON	12	97	110
SURFACE CREEK	3	103	135
UNCOMPAHGRE	4	75	85

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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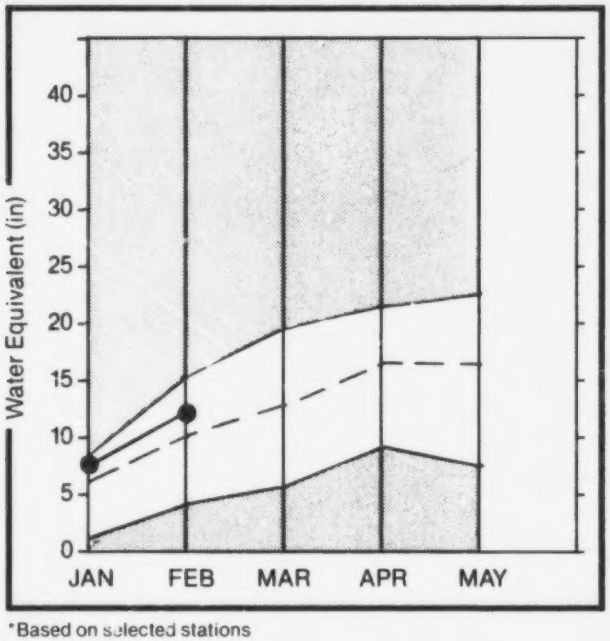
Colorado River Basin in Colorado

Mountain snowpack* (inches)

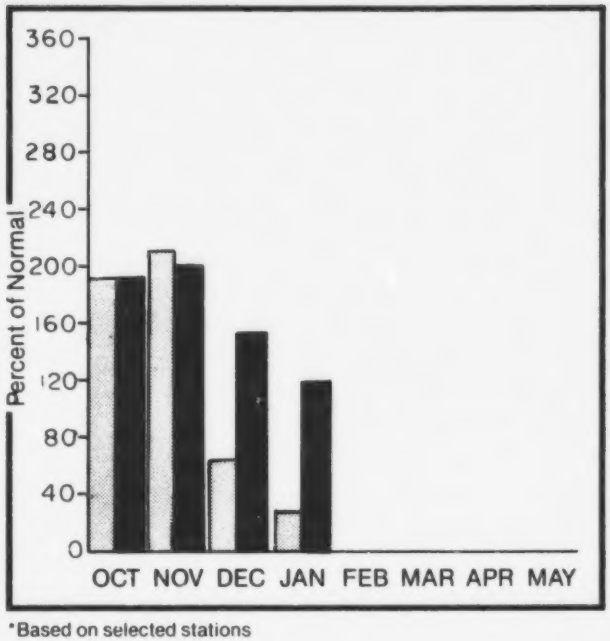


*Based on selected stations

Maximum ——— Average - - - -

Minimum ——— Current ●——●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation ▯ Year to date precipitation ▮

WATER SUPPLY OUTLOOK:

ALTHOUGH JANUARY'S WEATHER HAS BEEN DRY, ABOVE AVERAGE STREAMFLOWS ARE EXPECTED THIS YEAR. THE SNOWPACK IN THE BASIN HAS DECREASED DURING JANUARY, AND CURRENT SNOWPACK AVERAGES 110% OF NORMAL. ALTHOUGH JANUARY PRECIPITATION HAS BEEN MUCH BELOW AVERAGE, SEASONAL TOTALS REMAIN AT SLIGHTLY ABOVE AVERAGE. RESERVOIR STORAGE REMAINS GOOD AT 29% ABOVE AVERAGE. WITH ADEQUATE CURRENT SOIL MOISTURE, EXPECTED STREAMFLOWS SHOULD AVERAGE ABOUT 20% ABOVE NORMAL THROUGHOUT THE BASIN THIS YEAR.

For more information contact your local Soil Conservation Service office.

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UPPER COLORADO RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
COLORADO RIVER INF to Granby Res *	APR-SEP	231.0	275.0	119	142	95				
WILLOW CREEK INF to Willow Creek Res	APR-SEP	51.7	65.0	125	159	91				
WILLIAMS FORK near Parshall *	APR-SEP	63.0	80.0	126	171	81				
E. F. TROUBLESOME CR nr Troublesome	APR-SEP	19.3	24.0	124	166	83				
BLUE RIVER INFLOW to Dillon Res	APR-SEP	171.0	205.0	119	146	100				
BLUE R INF to Green Mountain Res *	APR-SEP	301.0	370.0	122	153	96				
COLORADO RIVER near Dotsero *	APR-SEP	1495.0	1900.0	127	152	107				
EAGLE RIVER below Gypsum	APR-SEP	315.0	420.0	133	159	111				
ROARING FORK at Glenwood Springs *	APR-SEP	733.0	900.0	122	148	99				
COLORADO RIVER near Cameo *	APR-SEP	2455.0	3100.0	126	152	103				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
DILLON	250.7	233.0	229.0	197.2
GRANBY	465.6	357.6	421.0	254.1
GREEN MOUNTAIN	139.0	81.4	87.0	76.6
HOMESTAKE	43.0	41.0	20.0	22.2
RUEDI	102.0	74.0	79.0	72.3
VEGA	32.0	18.8	19.0	10.0
WILLIAMS FORK	97.0	70.0	52.0	42.4
WILLOW CREEK	9.0	0.0	6.0	6.5

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BLUE RIVER	7	107	108
COLORADO	20	104	108
PLATEAU	3	109	139
ROARING FORK	6	86	102
WILLIAMS FORK	4	101	109
WILLOW CREEK	2	133	120

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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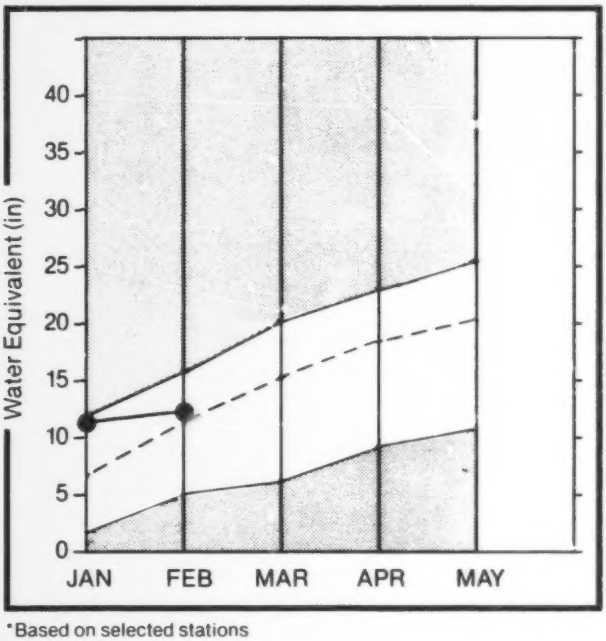
South Platte River Basin in Colorado

Mountain snowpack* (inches)

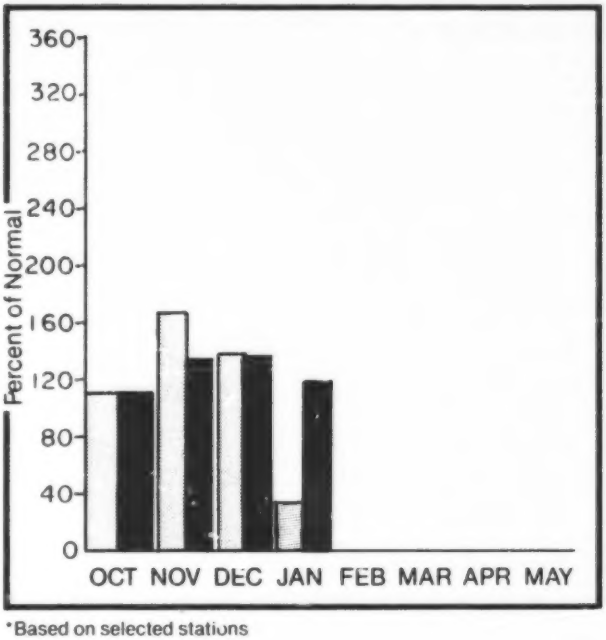


*Based on selected stations

Maximum ———— Average – – – –

Minimum ———— Current ●——●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation ▯ Year to date precipitation ▮

WATER SUPPLY OUTLOOK:

ABOVE AVERAGE WATER SUPPLIES ARE EXPECTED THIS YEAR IN THE SOUTH PLATTE BASIN. SNOWPACK STATISTICS HAVE DECLINED DURING JANUARY TO NEAR AVERAGE FOR FEBRUARY 1. LOSS OF THE LOWER ELEVATION SNOWPACK HAS DECREASED THE STATISTICS TO BELOW NORMAL ALONG THE FRONT RANGE. RESERVOIR STORAGE IS NEAR AVERAGE THROUGHOUT THE BASIN. STREAMFLOWS ARE EXPECTED TO BE THE HIGHEST IN THE CACHE LA POUDRE AND BIG THOMPSON RIVER DRAINAGES, WHILE NEAR AVERAGE FLOWS ARE FORECAST ON THE SOUTH PLATTE RIVER.

For more information contact your local Soil Conservation Service office.

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SOUTH PLATTE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SOUTH PLATTE RIVER at South Platte	APR-SEP	197.0	206.0	104	145	69				
BEAR CREEK at Morrison	APR-SEP	28.7	30.1	104	213	38				
CLEAR CREEK at Golden *	APR-SEP	127.0	145.0	114	167	82				
SOUTH BOULDER CR nr Eldorado Springs	APR-SEP	42.1	44.8	106	166	69				
BOULDER CREEK at Orodell	APR-SEP	46.7	50.0	107	154	81				
ST. VRAIN CREEK at Lyons	APR-SEP	78.8	85.0	107	161	76				
BIG THOMPSON RIVER at Drake *	APR-SEP	114.0	125.0	109	152	68				
CACHE LA POUDRE R at Canyon Mouth *	APR-SEP	268.0	325.0	121	160	94				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ANTERO	16.0	16.0	16.0	14.2
BARR LAKE	32.0	24.0	26.0	21.6
BLACK HOLLOW	8.0	5.0	4.0	3.9
BOYD LAKE	44.0	28.5	39.0	36.2
CACHE LA POUDRE	10.0	10.0	8.0	6.9
CARTER	113.5	79.2	93.0	79.9
CHAMBERS LAKE	9.0	3.0	4.0	3.2
CHEESMAN	79.0	74.0	77.0	49.9
COBB LAKE	34.0	17.0	19.0	13.6
ELEVEN MILE	97.8	98.0	99.0	88.3
EMPIRE	38.0	22.2	22.0	22.2
FOSSIL CREEK	12.0	6.0	5.0	6.9
GROSS	43.0	26.0	40.0	26.9
HALLIGAN	6.4	5.0	5.0	3.6
HORSETOOTH	143.5	103.4	97.0	83.4
JACKSON	35.0	26.1	26.0	28.7
JULESBURG	28.0	18.0	18.0	19.9
LAKE LOVELAND	14.0	8.6	10.0	9.0
LONE TREE	9.0	7.4	8.0	5.9
MARIANO	6.0	3.6	5.0	4.9
MARSHALL	10.0	1.1	8.0	3.8
MARSTON	18.0	11.0	11.0	14.8
MILTON	24.0	15.0	15.0	12.7
POINT OF ROCKS	70.0	50.4	66.0	55.4
PREWITT	33.0	13.9	19.0	16.9
RIVERSIDE	58.0	17.7	30.0	42.2
SPINNEY MOUNTAIN	48.0	39.0	---	---
STANDLEY	42.0	35.0	38.0	21.0
TERRY LAKE	8.0	6.0	5.0	5.0
UNION	13.0	11.2	12.0	10.4
WINDSOR	19.0	13.0	9.0	10.0
HORSECREEK	16.0	9.4	12.0	10.9

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BIG THOMPSON	6	142	119
BOULDER	5	109	93
CACHE LA POUDRE	8	130	121
CLEAR CREEK	5	112	102
SAINT VRAIN	3	152	88
SOUTH PLATTE	7	91	95

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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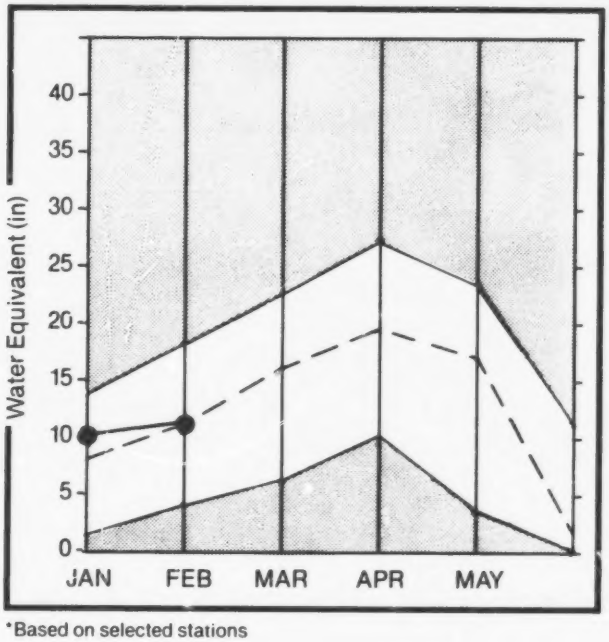
Yampa, White and North Platte River Basins in Colorado

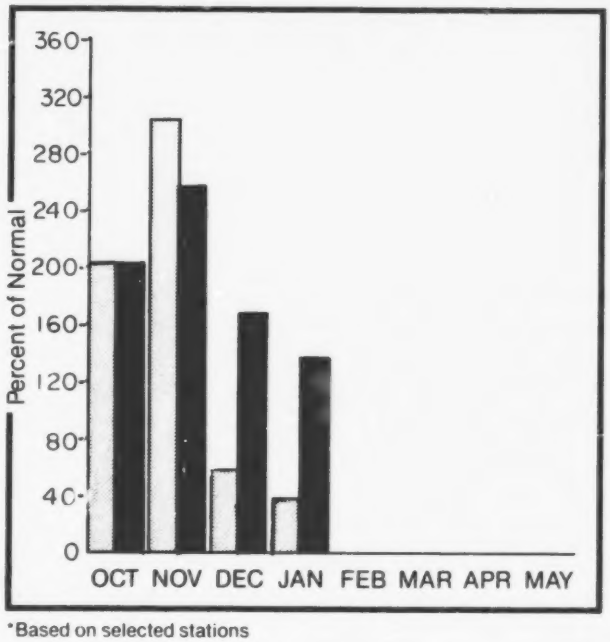
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Average
Minimum
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

SLIGHTLY ABOVE AVERAGE WATER SUPPLIES ARE EXPECTED DURING THIS RUNOFF SEASON. SNOWPACK AVERAGES DECREASED IN ALL OF THE BASINS DURING JANUARY. SNOWPACK IN THE ELK RIVER DRAINAGE IS ONLY 89% OF AVERAGE, WHILE THE LARAMIE AND NORTH PLATTE RIVER BASINS HAVE ABOVE AVERAGE SNOWPACK. LOWER ELEVATION PRECIPITATION WAS ONLY 39% OF AVERAGE, HOWEVER, THE SEASONAL TOTAL REMAINS ABOVE NORMAL. STREAMFLOWS ON THE NORTH PLATTE RIVER ARE FORECAST ABOVE NORMAL AND NEAR NORMAL FLOWS EXPECTED ELSEWHERE IN THE BASIN.

For more information contact your local Soil Conservation Service office.

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YAMPA, WHITE, AND NORTH PLATTE RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	PEAS. MAX. (% AVE.)	PEAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
LARAMIE RIVER near Wooos	APR-SEP	132.0	160.0	121	152	91				
NORTH PLATTE RIVER at Northgate	APR-SEP	262.0	300.0	114	140	89				
YAMPA RIVER at Steamboat Springs	APR-SEP	284.0	300.0	105	133	90				
ELK RIVER at Clark	APR-SEP	207.0	220.0	106	131	81				
YAMPA RIVER near Maybell	APR-SEP	956.0	1000.0	104	134	79				
LITTLE SNAKE RIVER at Lily	APR-SEP	357.0	400.0	112	147	75				
WHITE RIVER near Meeker	APR-SEP	304.0	360.0	118	144	93				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
ELK	2	105	89
LARAMIE	2	150	142
NORTH PLATTE	5	120	118
WHITE	2	89	106
YAMPA	6	91	00

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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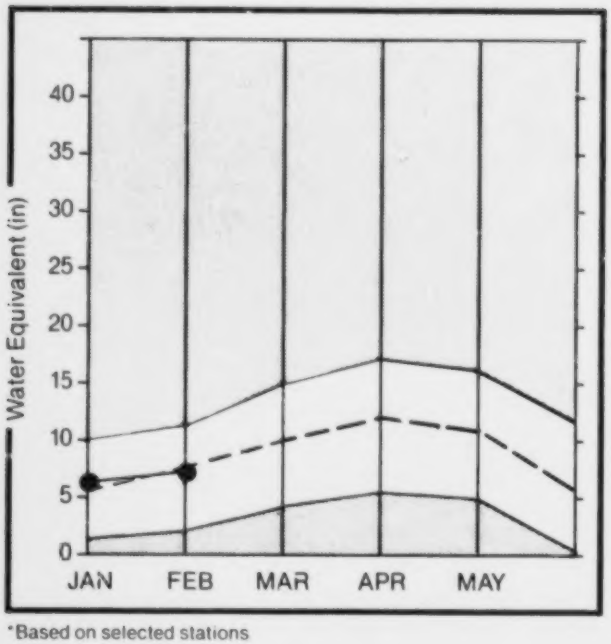
Arkansas River Basin in Colorado

Mountain snowpack* (inches)

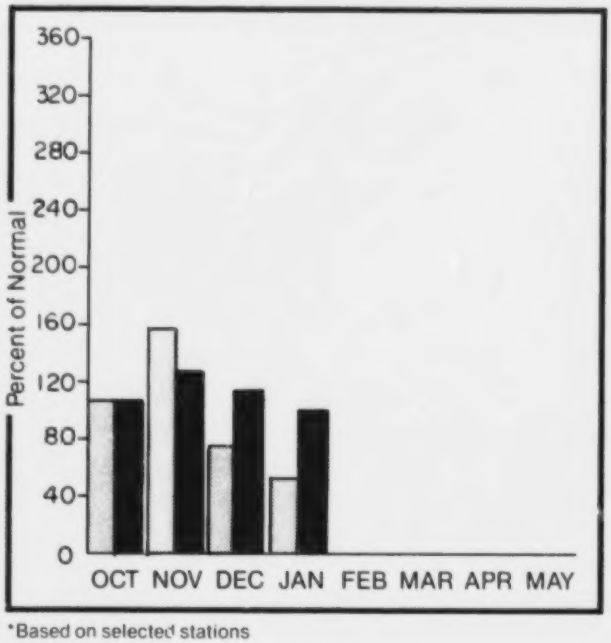


*Based on selected stations

Maximum ——— Average – – – –

Minimum – · – · – Current ●——●

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation ▯ Year to date precipitation ▮

WATER SUPPLY OUTLOOK:

WATER SUPPLIES FOR THE ARKANSAS BASIN ARE EXPECTED TO RANGE FROM NEAR AVERAGE TO SLIGHTLY BELOW AVERAGE. SNOWPACK FIGURES HAVE DECREASED THROUGHOUT THE BASIN TO 87% OF AVERAGE. PRECIPITATION WAS MUCH BELOW AVERAGE IN JANUARY, AND THE CURRENT SEASONAL TOTAL HAS DROPPED TO 100% OF AVERAGE. RESERVOIR STORAGE REMAINS MORE THAN THREE TIMES THE 20 YEAR AVERAGE. STREAMFLOWS ON THE MAIN STEM OF THE ARKANSAS RIVER SHOULD BE SLIGHTLY ABOVE AVERAGE, WHILE THE DOWN-STREAM TRIBUTARIES WILL HAVE BELOW AVERAGE.

For more information contact your local Soil Conservation Service office.

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ARKANSAS RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CHALK CREEK	APR-SEP	21.5	20.0	93	144	42				
ARKANSAS RIVER at Salida *	APR-SEP	300.0	300.0	100	142	58				
GRAPE CREEK near Westcliffe	APR-SEP	16.0	16.0	100	231	38				
ARKANSAS RIVER above Pueblo *	APR-SEP	278.0	275.0	99	196	14				
CUCHARAS RIVER near La Veta	APR-SEP	11.0	10.0	99	182	34				
HUERFANO RIVER near Redwa y	APR-SEP	15.0	13.0	86	239	33				
PURGATOIRE RIVER at Trinidad *	APR-SEP	36.0	30.0	8.	183	33				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ADOBE	70.0	59.5	61.0	9.1
CLEAR CREEK	11.0	8.6	3.0	6.7
GREAT PLAINS	150.0	87.2	67.0	31.8
HOLBROOK	7.0	4.8	5.0	3.7
HORSE CREEK	28.0	20.3	25.0	5.4
JOHN MARTIN	616.0	317.9	262.0	42.5
LAKE HENRY	8.0	5.3	5.0	4.4
MEREDITH	42.0	28.6	40.0	7.3
PUEBLO	354.0	103.0	294.0	53.1
TRINIDAD	167.0	19.4	29.0	22.7
TURQUOISE	126.6	113.0	122.0	33.9
TWIN LAKES	86.0	60.0	134.0	24.9

WATERSHED SNOWPACK ANALYSIS

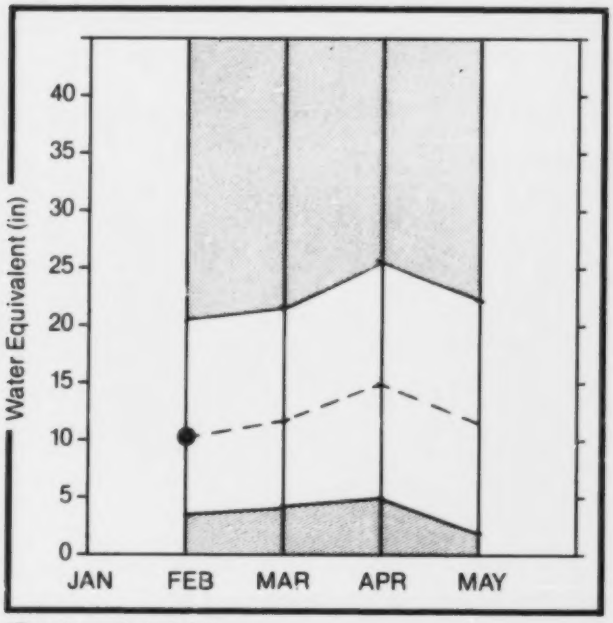
WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
ARKANSAS	9	95	95
CUCHARAS	3	77	62
PURGATOIRE	1	67	68

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

BEST COPY AVAILABLE

Rio Grande Basin in Colorado

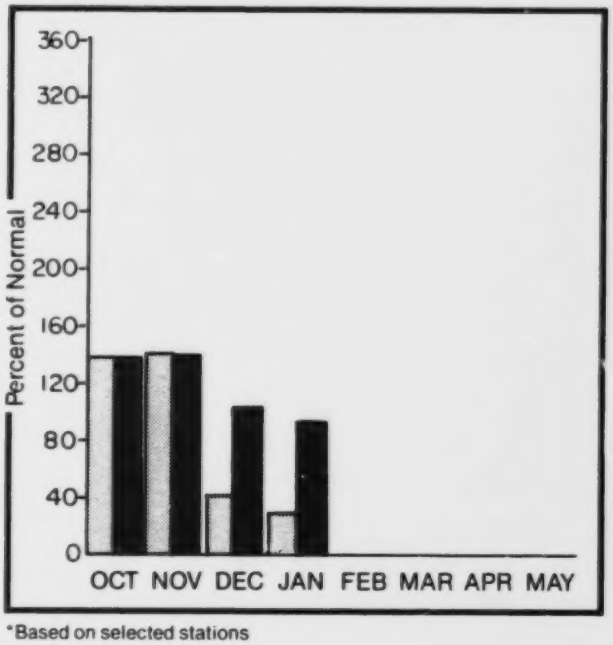
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

SNOWPACK IN THE RIO GRANDE BASIN IS 101% OF AVERAGE AND 81% OF LAST YEAR. THIS IS A CONSIDERABLE DROP FROM THE JANUARY 1 FIGURES. THE LOWER ELEVATIONAL SNOWPACK HAS DECREASED BECAUSE OF THE WARM AND DRY JANUARY WEATHER. THE HIGHER ELEVATION SNOWPACK REMAINS IN GOOD SHAPE AT 30% ABOVE NORMAL. STREAMFLOW FORECASTS ALONG THE MAIN STEM OF THE RIO GRANDE ARE NEAR 20% ABOVE AVERAGE, WHILE ELSEWHERE THEY RANGE NEAR TO SLIGHTLY BELOW NORMAL. RESERVOIR STORAGE IS 290% OF AVERAGE, BUT ONLY 54% OF CAPACITY.

For more information contact your local Soil Conservation Service office.

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UPPER RIO GRANDE BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SAGUACHE CREEK near Saguache	APR-SEP	30.0	30.0	100	197	40				
RIO GRANDE at Thirty Mile Bridge *	APR-SEP	126.0	150.0	119	180	60				
RIO GRANDE at Wagon Wheel Gap *	APR-SEP	310.0	370.0	119	176	59				
SOUTH FK OF RIO GRANDE at South Fork	APR-SEP	127.0	150.0	118	179	57				
RIO GRANDE near Del Norte *	APR-SEP	494.0	590.0	119	183	51				
ALAMOSA CREEK above Terrace Res	APR-SEP	66.0	80.0	121	182	42				
LA JARA CREEK near Capulin	MAR-JUL	7.8	9.0	115	134	77				
TRINCHERA WATER SUPPLY *	APR-JUL	26.3	22.0	83	154	34				
CONEJOS RIVER near Mogote *	APR-SEP	195.0	225.0	115	182	44				
LOS PINOS RIVER near Ortiz	APR-SEP	69.0	75.0	108	152	43				
SAN ANTONIO RIVER at Ortiz	APR-SEP	15.2	16.0	105	191	39				
CULEBRA CREEK at San Luis *	APR-SEP	18.0	15.0	83	283	33				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CONTINENTAL	27.0	10.5	8.0	4.3
PLATORO	60.0	47.6	34.0	9.3
RIO GRANDE	51.0	29.0	31.0	15.2
SANCHEZ	103.0	40.2	38.0	15.9
SANTA MARIA	45.0	24.5	14.0	5.8
TERRACE	18.0	11.1	9.0	5.6

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
ALAMOSA	1	81	107
CONEJOS	6	74	101
CULEBRA	4	49	56
RIO GRANDE, CO	13	95	116

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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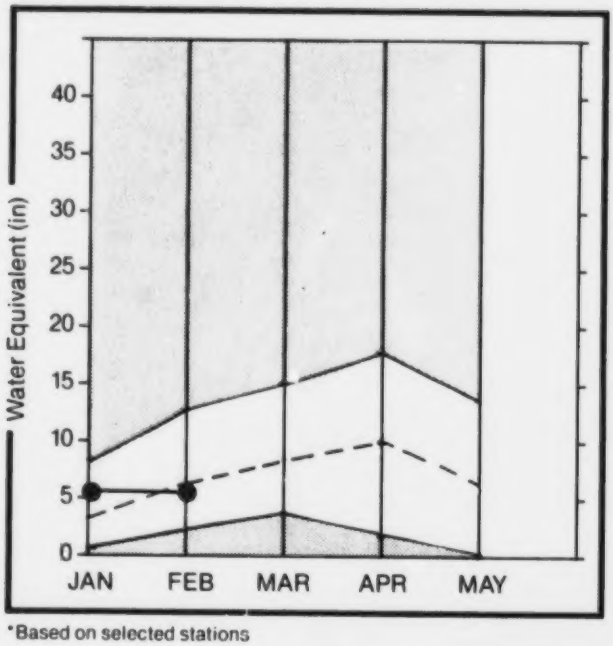
Rio Grande Basin in New Mexico

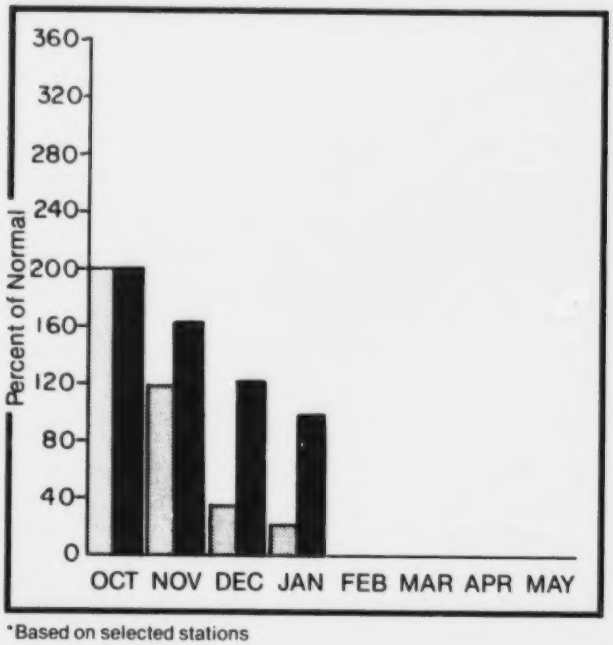
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Average
Minimum
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

LOW ELEVATION PRECIPITATION FOR JANUARY WAS 23% OF AVERAGE. THIS BROUGHT THE TOTAL PRECIPITATION FOR THE YEAR TO 98%. HIGH ELEVATION SNOWPACK IS NOW ONLY 68% OF NORMAL, AND 44% OF LAST YEAR. MOST LOWER ELEVATION SNOWPACK HAS BEEN REMOVED BECAUSE OF UNSEASONABLY WARM AND DRY CONDITIONS THAT HAVE PREVAILED OVER THE LAST THREE MONTHS. STREAMFLOW VOLUMES ALONG THE RIO GRANDE ARE NEAR AVERAGE, WHILE MOST TRIBUTARIES ARE BELOW AVERAGE. RESERVOIR STORAGE IS 375% OF AVERAGE.

For more information contact your local Soil Conservation Service office.

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LOWER RIO GRANDE BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
COSTILLA CREEK at Costilla *	MAR-JUL	19.0	16.0	[illegible]	[illegible]	[illegible]				
GALLINAS CREEK near Montezuma	MAR-JUL	7.0	5.0	[illegible]	[illegible]	[illegible]				
JEMEZ RIVER near Jemez	MAR-JUL	40.0	32.0	[illegible]	[illegible]	[illegible]				
PECOS RIVER at Pecos	MAR-JUL	45.0	34.0	[illegible]	[illegible]	[illegible]				
RED RIVER at Mouth	MAR-JUL	30.0	26.0	[illegible]	[illegible]	[illegible]				
RIO CHAMA at El Vado	MAR-JUL	208.0	220.0	[illegible]	[illegible]	[illegible]				
RIO GRANDE at Otowi *	MAR-JUL	600.0	710.0	[illegible]	[illegible]	[illegible]				
RIO GRANDE at San Marcial *	MAR-JUL	420.0	525.0	[illegible]	[illegible]	[illegible]				
RIO HONDO near Valdez	MAR-JUL	15.0	13.0	[illegible]	[illegible]	[illegible]				
RIO PUEBLO de TAOS bl Los Cordovas	MAR-JUL	27.0	21.0	[illegible]	[illegible]	[illegible]				
SANTA CRUZ RIVER at Cundiyo	MAR-JUL	14.0	11.0	[illegible]	[illegible]	[illegible]				
SANTA FE near Santa Fe	MAR-JUL	2.9	2.5	[illegible]	[illegible]	[illegible]				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LAKE AVALON	6.0	3.0	4.0	3.5
CABALLO	344.0	185.0	70.0	46.3
CONCHAS	330.0	206.1	208.0	139.0
EL VADO	195.4	172.0	125.0	33.8
ELEPHANT BUTTE	2195.0	2048.8	1622.0	415.6
LAKE McMILLAN	34.0	32.0	33.0	15.9
SANTA ROSA	447.0	106.5	23.0	---
SUMNER	102.0	43.0	37.0	64.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
PECOS RIVER	1	27	52
RED RIVER	2	55	70
RIO CHAMA	3	72	80
RIO GRANDE, NM	15	40	66
RIO HONDO	0	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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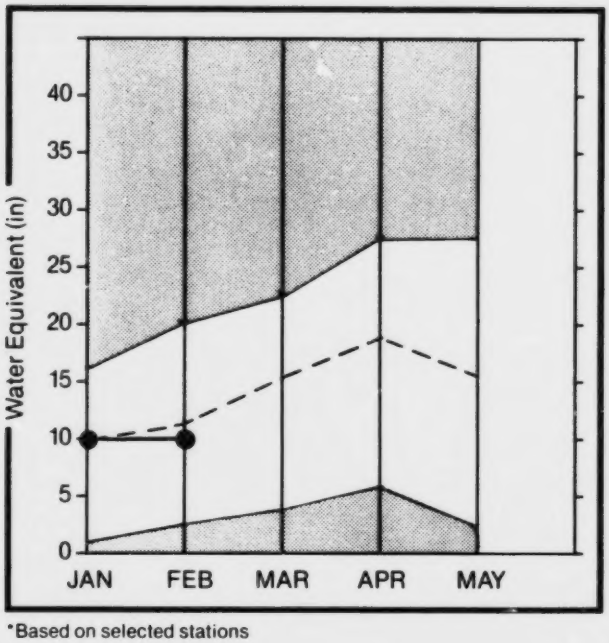
San Miguel, Dolores, Animas and San Juan Basins in Colorado and New Mexico

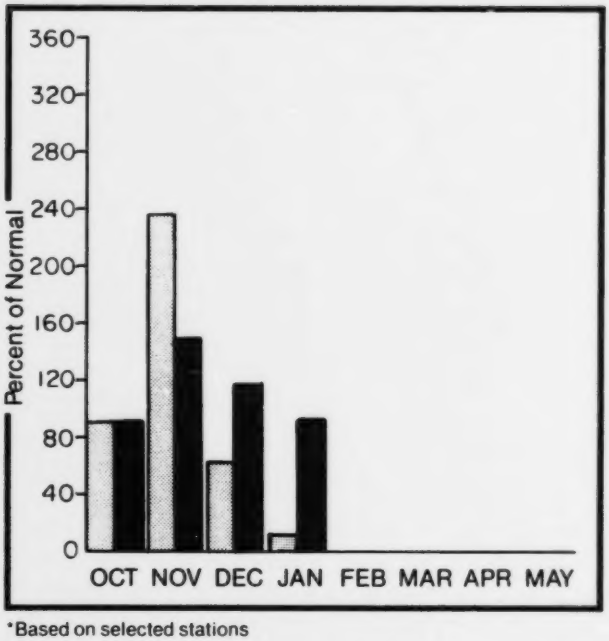
Mountain snowpack* (inches)



*Based on selected stations

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

NEAR NORMAL RUNOFF CONDITIONS ARE EXPECTED THIS YEAR IN THESE BASINS. SNOWPACK IN THE ANIMAS AND DOLORES BASINS HAVE DROPPED TO BELOW NORMAL. JANUARY'S LOWER ELEVATION PRECIPITATION WAS EXTREMELY LOW, AND HAS DECREASED THE SEASONAL TOTAL TO BELOW AVERAGE. THE SIX MAJOR RESERVOIRS IN THESE BASINS ARE ALL STORING ABOVE AVERAGE AMOUNTS FOR AN AVERAGE OF 55% ABOVE NORMAL. HIGHEST EXPECTED STREAMFLOWS ARE ON THE SAN JUAN RIVER, WHILE THE REMAINING FORECASTS ARE NEAR AVERAGE.

For more information contact your local Soil Conservation Service office.

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SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SAN MIGUEL RIVER at Placerville	APR-SEP	131.2	125.0	95	140	60				
DOLORES RIVER at Dolores	APR-SEP	256.0	260.0	101	130	71				
SAN JUAN RIVER at Carracus	APR-SEP	400.7	485.0	121	172	70				
PIEDRA CREEK at Arboles	APR-SEP	225.0	250.0	111	153	82				
LOS PINOS RIVER at Bayfield *	APR-SEP	219.0	220.0	100	134	78				
INFLOW TO NAVAJO RESERVOIR *	APR-JUL	729.0	800.0	109	141	78				
ANIMAS RIVER at Durango	APR-SEP	458.0	485.0	105	137	79				
FLORIDA RIVER at Bondad	APR-SEP	37.0	38.0	102	143	68				
LA PLATA RIVER at Hesperus	APR-SEP	26.0	26.0	100	144	73				
MANCOS RIVER near Towaoc	MAR-JUL	28.2	30.0	106	152	60				

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
GROUNDHOG	21.7	13.2	11.0	9.6
JACKSON GULCH	10.0	5.3	3.0	4.4
LEMON	40.0	26.3	28.0	17.3
NARRAGUINNEP	19.0	15.6	15.0	8.5
NAVAJO	1696.0	1230.0	1465.0	790.8
VALLECITO	126.0	56.0	49.0	51.1

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
ANIMAS	5	78	91
DOLORES	6	71	83
SAN JUAN	5	85	109

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

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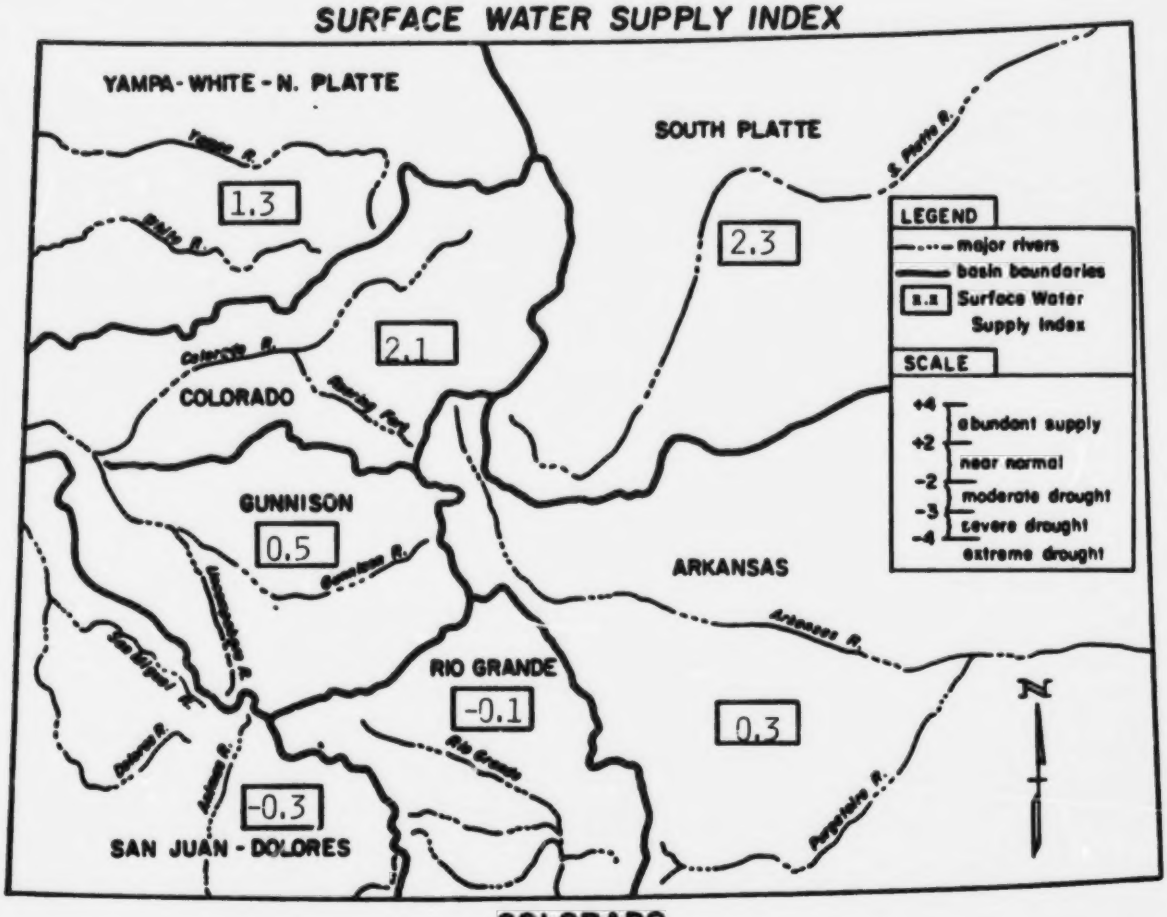
Date: FEBRUARY 1986

SURFACE WATER SUPPLY INDEX



COLORADO

The Surface Water Supply Index (SWSI) is a weighted value derived for each major basin which generally expresses the potential availability of the forthcoming season's water supply. The components used in computing the index are reservoir storage, snowpack water equivalent, and precipitation. The SWSI number for each basin ranges from a -4.00 (prospective water supplies extremely poor) to a +4.00 (prospective water supplies plentiful). The SWSI number is only a general indicator of surface water supply conditions. Further data analyses may be required in specific situations to more fully understand the impacts of abnormally dry or wet conditions suggested by the SWSI. Development of the SWSI has been a cooperative effort between the Colorado State Engineers' Office and the Soil Conservation Service.

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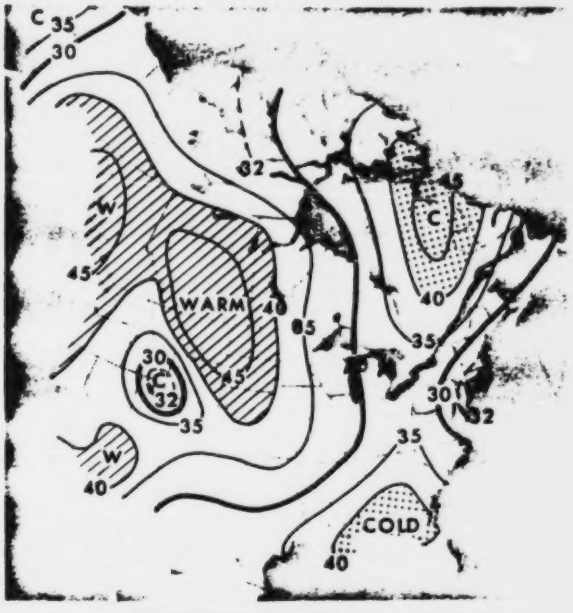
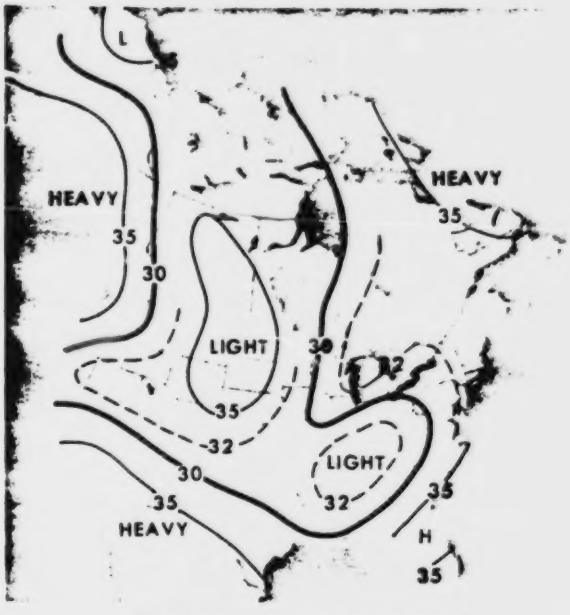
MONTHLY & SEASONAL WEATHER OUTLOOK

U.S. DEPARTMENT OF COMMERCE•National Oceanic and Atmospheric Administration•National Weather Service

FOR FEBRUARY 1986



TEMPERATURE PROBABILITIES



PRECIPITATION PROBABILITIES

Hawaiian Outlook - Temperature Probabilities: WARM 38%, COLD 22%, NEAR NORMAL 40%
Precipitation Probabilities: LIGHT 40%, HEAVY 20%, MODERATE 40%.

Because any user of this Outlook needs to know how much confidence to place in it when determining how heavily to let it weigh in a decision, the mapped predictions on this and the next two pages are shown in terms of numerical probabilities. Only two categories of average temperature, WARM and COLD, and two of total precipitation, LIGHT and HEAVY, appear on the maps. Each of these classes is defined so as to occur 30 percent of the time in the long run; the defining numerical limits are listed on the inner pages of the Outlook. In a few exceptionally dry places, such as summertime California, LIGHT will occur more than 30 percent of the time because no rain at all occurs more than 30 percent of the time.

The contours on the maps show our estimates of the probabilities of occurrence for these classes, rising on each side of a common heavy line of indifference (30 percent) toward a maximum for the preferred class. A third, intermediate category, NEAR NORMAL temperature or MODERATE precipitation, does not appear explicitly on the maps. It will occur 40 percent of the time in the long run, and because we have found that predictive skill lies almost entirely outside this part of the frequency distribution, its probability is kept at a constant and uniform 40 percent. Therefore, since the remaining 60 percent is shared between WARM and COLD and between LIGHT and HEAVY, the maps need only show a probability for the preferred class, with the difference between it and 60 to be attached to the less likely class. Shading shows where the probability of the preferred class exceeds 40 percent, converting it to the most likely of the three classes. In all unshaded areas, NEAR NORMAL temperature or MODERATE precipitation is the class most likely to occur. In the driest places these rules do not hold exactly, since Light (no rain) will eat into the MODERATE class. For these few places the reduced probability of MODERATE is given individually in the station tables.

Any user wishing to deal with only two outcomes, temperature either above or below the long-term normal or precipitation either above or below the long-term median, may do so by dividing the central category's probability in half, giving 20 points to each of the outer categories. This will add 20 to each of the probability contours shown on the maps, again excepting summer time rainfall in California and the Mediterranean, which must be treated station by station using the tables. Normals and medians are included in the numerical tables of class limits.

Some users may wish to have a complete probability distribution, from which their own choice of classes can be assigned probabilities. For temperature, that conditional probability distribution will be approximately Gaussian, and its mean and standard deviation can be estimated for the desired location by adjusting the local normal and class limits with the help of the following table

30	.00	1.91
35	.27	1.94
40	.53	1.86
45	.77	1.81
50	1.00	1.74

For a predicted percent probability of WARM or COLD in the first column, the mean of the conditional distribution will be the local normal plus or minus the product of the local class limit threshold value and the factor given in the second column. The standard deviation of the conditional distribution will be the product of the same class limit threshold value and the factor given in the third column. These adjustments amount to a shifting and slight narrowing of the climatic frequency distribution of monthly or seasonal average temperatures. Unfortunately, since its climatic frequency distribution is not Gaussian, the same kind of simple generalization of the forecast probabilities cannot be provided for precipitation.

CLIMATE ANALYSIS CENTER

WASHINGTON, D.C.

VOLUME 40, NUMBER 3
JANUARY 30, 1986

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The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

State	Colorado State Engineer
	Colorado State Soil Conservation Board
	New Mexico State Engineer
	Colorado State University Experiment Station
	Rocky Mountain Forest and Range Experiment Station
	New Mexico Department of Game and Fish
	University of Colorado, INSTAAR
Federal	U.S. Department of Agriculture
	Forest Service
	Soil Conservation Service
	U.S. Department of the Interior
	Bureau of Reclamation
	Geological Survey
	National Park Service
	U.S. Department of Commerce
	NOAA, National Weather Service
	NOAA, National Environmental Satellite Service
	U.S. Department of Defense
	Army Engineer Corps
	National Aeronautics and Space Administration
	Goddard Space Flight Center
Local	Colorado Public Service Company
	Public Service Company of New Mexico
	City of Denver
	City of Boulder
	City of Greeley
	City of Fort Collins
	Arkansas Valley Ditch Association
	Colorado River Water Conservation District
	Farmers Reservoir and Irrigation Company
	San Luis Valley Irrigation District
	Santa Maria Reservoir Company
	Costilla Land Company
	Montezuma Irrigation Company
	Uncompahgre Valley Water Users' Association
	Twin Lakes Reservoir and Canal Company
	Trinchera Irrigation Company
	Aspen Skiing Corp.
	Colorado Fuel and Iron Corp.
	Climax Molybdenum Corp.
	Copper Mountain Ski Area
	Lake Eldora Corp.
	Vail Associates, Inc.
	Taylor Lumber and Land Company
	Idarado Mining Corp.
Private	Otto Goemmer, Colorado
	Moreno Ranch, New Mexico

Other organizations and individuals furnish information for the snow survey reports. Their cooperation is gratefully acknowledged.

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